



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Appling
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Examiner: Bonshock, Dennis G.

For: UPDATING OBJECTS CONTAINED WITHIN A WEBPAGE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

Sir:

I, Stephen Charles Appling, hereby declare that:

1. I am the sole inventor of the above-referenced patent application.
2. I have reviewed U.S. Patent No. 6,823,359 to Heidingsfeld ("Heidingsfeld"), which was cited in the Office Action mailed June 2, 2005, in connection with the patent application. I understand that Heidingsfeld has an effective prior art date of November 21, 2000.
3. The attached documents, from which the dates have been removed, demonstrate that I conceived of the system and method for updating objects contained within a webpage defined by pending claims 1-5, 7-11, 13, and 16-21 prior to November 21, 2000. The documents are described below.
4. Exhibit A is a facsimile from counsel addressed to me with an attached copy of an earlier draft of the pending patent application. The early draft is titled "A METHOD AND SYSTEM FOR UPDATING OBJECTS CONTAINED WITHIN A WEB PAGE" ("Application Draft") describing the system and method for selectively updating objects on a web page

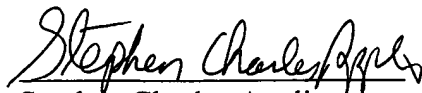
automatically without the need for refreshing the entire web page. The Figures included with this Application Draft are substantially similar to the Figure submitted with the filed patent application. Moreover, the detailed description of the invention with reference to those figures is consistent with the claimed inventions in claims 1-21 of the present invention.

6. The date of the Application Draft has been redacted from the attached copy; however, that date is prior to November 21, 2000.

7. I along with the assistance of counsel did diligently pursue the filing of the patent application from a date prior to November 21, 2000 until the actual filing of the patent application on December 22, 2000.

8. The research and development of the invention described in the Exhibit documents was conducted in the United States after January 1, 1996.

9. I declare that all statements made herein of my own knowledge and belief are true and that all statements made on information and belief are believed to be true, and further that the statements are made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.


Stephen Charles Appling

9/28/05
Date

* * * COMMUNICATION RESULT REPORT

A

FILE MODE	OPTION	ADDRESS (GROUP)	TTI RESULT	PAGE
074 MEMORY TX		*601360011097707953580	OK	27/27

REASON FOR ERROR
E-1) HANG UP OR LINE FAIL
E-3) NO ANSWER

E-2) BUSY
E-4) NO FACSIMILE CONNECTION

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To: Steve Appling

From: S. Craig Hemenway

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5

10 **A METHOD AND SYSTEM FOR UPDATING OBJECTS
CONTAINED WITHIN A WEB PAGE**

TECHNICAL FIELD

15 This application relates generally to a method and system for selectively updating objects on a web page, and more specifically to providing automatic updating of web page objects without the need for refreshing the entire web page.

BACKGROUND

20 Oftentimes, the content of a web page is dynamic in nature. In some cases, changes to the content occur every few moments, as updated information is placed on a web page. For example, stock market tickers and live camera feeds seen across the Internet may constantly send updated information to a web browser. This permits a continuous media stream, which in turn keeps an observer informed of
25 up-to-the-minute or time-critical events.

 Many current implementations of dynamic web pages require that the web page be frequently refreshed in order to display the newest

information. This typically requires that the user continually click a “refresh” button, consuming the user’s time and attention. Additionally, this implementation requires that the entire web page be reloaded, introducing significant time losses from retransmitting information that has not changed. A web page employing a timer contained within the page to periodically request updated information from a server also suffers from the drawback of reloading the entire web page.

Alternate methods of continuous updating include the use of Java applets to receive information broadcast by an application running on a remote server, hereinafter referred to as a “server-side application.” Typically, the server-side application generates dynamically updated content which is then requested by or transmitted to a Java applet executed within a web browser. By implementing a server-side application, the requirement of user intervention to refresh a page is eliminated. However, this implementation has a different set of drawbacks: namely, that the Java applet typically only makes changes to itself or objects displayed within the applet. In the case where an object requiring updating is not a part of the applet, a user-initiated manual refresh is again required, or the Java applet must make use of the Java feature known as “LiveConnect”. Further, many corporate and educational firewalls do not permit Java applets to receive continuously broadcast information from a remote server.

Thus, there is a need in the art for a method of updating HTML objects contained within a web page without requiring either a manual command or the use of a Java applet.

SUMMARY OF THE INVENTION

Briefly described, the present invention may constantly update selective portions of a web page without requiring that the entire document be reloaded, and without user intervention. Generally speaking, the invention takes the form of a web page containing an inline frame, or "I-frame", displayed in a web browser. A frame is a method of displaying data within a web page well known to those skilled in the art. An exemplary embodiment of the current invention uses HTML commands to set the I-frame's height and width to zero. This I-frame, therefore, may not be seen by a user of the present invention looking at a displayed web page. The web page also typically contains one or more updateable HTML objects, and may contain one or more nonupdateable HTML objects. Note that, although the term "I-frame" is used throughout this specification, that the invention may be practiced with any type of HTML-defined frame. Additionally, alternate embodiments of the present invention may make use of frames with dimensions other than a height and width of zero, without affecting the performance of the invention. Thus the term "I-frame" is used for consistency and convenience only.

The code defining an I-frame may contain a timer. In this event, the timer runs until a predetermined value is met, at which point the I-frame requests updated data from a server. Typically, this data takes the form of instructions to the I-frame to alter the various updateable HTML objects contained within the web page but external to the I-frame. Thus, the I-frame may alter portions of the web page which it are contained within it, and with which it otherwise has no direct interaction.

That the invention improves over the drawbacks of prior web page update systems and accomplishes the advantages described above

will become apparent from the following detailed description of the embodiments and the appended drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

5 FIG. 1 displays an exemplary operating environment of the current invention.

FIG. 2 displays an HTML frame incorporating an exemplary embodiment of the current invention.

10 FIG. 3 displays an initial HTML frame in accordance with an exemplary embodiment of the current invention.

FIG. 4 displays an updated HTML frame in accordance with an exemplary embodiment of the current invention.

FIG. 5 is a flowchart depicting the operation of an exemplary embodiment of the current invention.

15

DETAILED DESCRIPTION OF THE EMBODIMENT

The present invention is directed to a method and system for providing content updates to a web page displayed in a web browser, without the need for refreshing the entire web page or requiring any user
20 input.

The exemplary embodiment of the present invention takes the form of a web page including selectively refreshed display objects and an inline frame, or "I-frame". An I-frame is a variant of a normal frame. Within the context of a web page, a frame is a portion of the web
25 browser dedicated to displaying a first (or child) web page, such as an HTML page, within a second (or parent) web page. Thus, each frame may contain a separate web page, sharing display space within the web browser with other frames. Operations within a first frame may affect

the display in a second frame, although generally only through user input. For example, a first frame may display a table of contents, while the second frame displays individual chapters. The chapter displayed in the second frame may be updated by means of the user selecting a specific portion of the table of contents.

In an exemplary embodiment, the I-frame has both a height and width of zero, thus rendering it invisible within the browser. The exemplary embodiment further creates the I-frame as an HTML construct.

In conjunction with the web browser, the I-frame is capable of retrieving information and/or instructions from a remote server hosting a web page, Java servlet, File Transfer Protocol ("FTP") data structure, or other shared data service. Typically the I-frame is operative to contact a server at fixed intervals, at which point the server passes data (possibly generated by a Java servlet) to the I-frame. In an exemplary embodiment, the I-frame contacts the server using the hypertext transfer protocol ("HTTP") or other protocols well known to those skilled in the art. Alternate embodiments may use different data transfer protocols to effect the I-frame request and server response.

The updated data transmitted by the server typically includes instructions which permit the I-frame to modify various elements of the parent web page that contains the I-frame. In this manner, selective portions of the web page may be updated without requiring a complete refresh of the entire HTML document or any user intervention.

Referring now to the drawings, in which like numerals represent like elements throughout the several figures, aspects of the present invention and a suitable operating environment will be described.

Exemplary Operating Environment

FIG. 1 and the following discussion are intended to provide a general description of the suitable computing environment in which the invention may be implemented. While the invention will be described in the general context of a web page displayed within an application program that runs on an operating system in conjunction with a personal computer, the invention may also be implemented in additional manners well known to the invention. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communication network.

The present invention may be embodied as a web page object update system 100. The web page object update system 100 comprises a web page 230 and a server-side application 102. The server-side application 102 resides on a server 104, and is typically created using the Java programming language. Alternate embodiments may employ different types of server-side applications, which may be created using different programming languages. For example, server-side applications may consist of Java scripts (or "servlets"), CGI scripts, or any script capable of generating commands interpretable and executable by the web page object update system 100.

The server 104 further typically contains one or more web page data files 103 which, when loaded into a web browser 112, may implement the web page 230 comprising a portion of the web page object update system 100. The website 114 and constituent web page data files 103 may take multiple forms, such as an HTML instruction

set, an XML instruction set, a server hypertext markup language (“SHTML”) instruction set, and so on. Accordingly, it should be understood that the spirit of this invention embraces any web page object update system 100 created through the use of any hypertext-like language, such as those mentioned above. Alternate embodiments may store the web page data files 103 locally, on another server, or separated into multiple files resident on different elements of a network 106, described in greater detail below.

The server 104 is in communication with a network 106, such as the Internet, an intranet, a telephone wireline and/or wireless network, a cellular network, a broadband network, and any other wireless or wire-based network. The clients 108a - 108n are also in communication with the network. Clients 108a - 108n may access the web page data file 103 by using a web browser 110, or similar application program, to connect to a website 114 linking the server 104 and the distributed computer network 106. Once the website 114 is accessed by the web browser 112, a web page 230 is created within the browser by rendering the web page data file 103. Typically, a user may view the web page 230 through a display monitor 116 connected to the client 108a. An example of the web page 230 shown on the display monitor 116 is shown in FIG. 2.

Description of an Exemplary Embodiment

FIG. 2 displays an exemplary embodiment of the present invention, embodied as a web page 230 displayed within a web browser 112. Although the exemplary embodiment makes use of HTML, alternate embodiments may be coded in XML, SHTML, DHTML, Lynx, or any other hypertext-like language. Thus, the term “web page” is used

throughout this specification to embrace all forms of web pages programmed in any language.

The web page 230 contains an I-frame 200, a non-updateable object 220, and an updateable object 210. The non-updateable object 220 signifies a portion of the web page 230 displaying content that will not be altered through the operation of the I-frame 200. By contrast, the I-frame 200 may and typically will change the updateable object 210 at some point during operation of the web object update system 100. Note that the dashed lines surrounding the I-frame 200, updateable object 210, and the non-updateable object 220 are for illustrative purposes only, and need not be displayed in an embodiment of the present invention.

Upon initial display of the web page 230 by the web browser 112, the web object update system 100 sets a timer (not shown), contained within the code that defines the I-frame 200, to zero and begins a count. When the timer reaches a threshold value specified in the code comprising the I-frame 200, the I-frame 200 requests updated data from a remote server 104. Typically, this updated data is generated by the server-side application 102 stored on the remote server 104. The updated data may take the form of JavaScript generated by a Java servlet. Regardless of the format, the updated data carries instructions to the I-frame 200 which order the I-frame 200 to modify certain objects of the parent web page 230. The updated data may alternately take the form of raw data relayed from a remote network element, HTML code, XML code, and so on. In an alternate embodiment, the I-frame 200 may be self-determinative in that the I-frame may be configured to process the raw data to determine which portions of the parent web page 230 to update and to generate instructions accordingly; this alternative

operation is to be distinguished from receiving instructions from the server 104.

In an exemplary embodiment, the timer is maintained in the code defining the I-frame, although alternate embodiments may create the timer within the code defining the parent web page 230. In an
5 exemplary embodiment, the timer is located at the client 108 and not the server 104, in order to avoid implementing a "server push" scheme. "Server push" refers to the transmission of data from a server 104 either continuously or at periodic intervals, without any data request from the
10 web browser 112. An exemplary embodiment avoids a server push due to the fact that server pushes are blocked by certain firewalls. Further, some ISPs and/or clients 108a may time out and disconnect from the network 106 unless the web browser 112 occasionally transmits a data request to a server 104. By avoiding the server push implementation,
15 the possibility of client timeout is minimized.

The exemplary implementation shown in FIG. 2 is a simple version of the web object update system 100 shown in Fig. 1. The I-frame 200 may receive updated data from a remote server 104 at set intervals, which enables the I-frame 220 to update a display of the
20 current time in the parent web page 230. The current time is an example of an updateable object 210, while the phrase "The time is:" is an example of a non-updateable object 220. Thus, whenever the timer reaches a threshold value, the I-frame 200 requests updated data, and accordingly updates the time displayed an updateable object 210
25 without requiring the user to refresh the entire web page 230.

The HTML source code necessary to create the exemplary web page 230 and I-frame 200 of Fig. 2 is as follows:

<HTML>

```

        <BODY>
        <IFRAME src="time.jsp" width="0" height="0"
5      style="visibility:hidden"></IFRAME>
        The time is : <SPAN id="timeDiv">???

```

The Java ServerPage ("JSP") application 102 generates instructions periodically received by the I-frame 200 is as follows:

```

10    <HTML>
        <SCRIPT>
            window.parent.timeDiv.innerHTML = "<%= new
java.util.Date() %>";
            function refresh() { location.href =
15    location.href; }
            setTimeout(refresh, 2000);
        </SCRIPT>
        </HTML>

```

20 Again, alternate embodiments may use different forms of server-side applications 102 without departing from either the spirit or scope of the invention.

The web page object update system 100 may be used to monitor and update more than a single updateable object 210 of a web page 230. 25 For example, one possible application of the system is in the monitoring and display of airflow within a building, as shown in FIG. 3. In the example of FIG. 3, a browser 112 displays a web page 230 including a HVAC schematic 300 that represents the layout pipes within an office building. It is to be understood that the representation is not limited to just an office building, but could also be a home, warehouse, or any 30 other building or facility. Each data point, such as the incoming airflow 310 and airflow temperature 320, within the schematic 300 may be represented by an updateable individual HTML object, which may be changed in some manner as actual conditions within the HVAC system

change. For example, the air temperature and airflow readouts may change with as airflow within the pipe changes.

The building may be collocated at the client **108**, the remote server **104**, or may be in another location. Regardless of the building location, various portions of a monitored section of an HVAC system may contain a small sensor which monitors temperature, humidity, and/or other factors important in maintaining properly balanced airflow. It is well known that such sensors may periodically relay monitored data to the server **104** to record changes in comfort or environmental control levels. The server **104** may then employ this monitored data to generate updated data for display on the web page **230**. In turn, the I-frame **200** periodically requests the updated data from the server **104**, along with instructions regarding which portions of the schematic **300** require updating to show changed conditions. As necessary, the I-frame **200** updates each individual updateable object **210** to reflect changes in comfort level.

In FIG. 3, the initial state of an exemplary embodiment of an HTML content update system **100** is displayed as a web page **230** in a web browser **112**. For purposes of this example, presume that web page **230** displays a HVAC pipe schematic **300**, corresponding to an actual pipe section located within a building. The web page displays the incoming airflow **310**, the airflow temperature **320**, the main outgoing airflow **330**, and the sectional outgoing airflow **340**. The web page may further include several updateable objects **210**. Sample updateable objects include the incoming airflow **310**, the airflow temperature **320**, the main outgoing airflow **330**, the sectional outgoing airflow **340**, the valve position **350**, and the valve display **360**. For example, in FIG. 3 the incoming airflow is 2300 cubic feet per minute (CFM), the airflow

temperature is 62 degrees Fahrenheit, and the valve position is 43% open. The valve display 360 may be animated in the exemplary embodiment to show the valve opening and closing in a real-time fashion.

5 When the web page 230 is first loaded, a timer within the I-frame 200 begins counting. Such timers are well known to those of ordinary skill in the art. Once the timer reaches a configurable threshold value, the I-frame 200 sends a request for updated data to the server 104. The server 104 relays to the I-frame 200 instructions to modify the various
10 updateable objects within the schematic 300. For example, the I-frame 200 may receive instructions from the server to change the incoming airflow 310, because the amount of air passing through the pipe has changed. Alternate embodiments may not relay updated data, but rather raw (or processed) monitored data which may then be used by the I-
15 frame 200 itself to determine the proper method of updating. That is, in an exemplary embodiment decisions as to what updateable objects 210 are updated, and thus what instructions are generated to cause such updates, are made by the server-side application 102 resident on the server 104. The instructions passed to the I-frame 200 are a result of
20 this decision process. Alternate embodiments may pass data other than instructions from the servlet 102 to the I-frame 200, and permit the client 108a to determine what updateable objects 210, if any, must be changed.

FIG. 4 shows the browser 112 displaying an updated web page
25 230 comprising an updated HVAC schematic 300', which represents the schematic 300 of FIG. 3, after certain changes have taken place. In the example shown in FIG. 4, presume two conditions have changed. First, the airflow temperature 320' has risen by five degrees Fahrenheit.

Second, the valve 360' has been partially closed. In a typical embodiment, remote sensors located within the HVAC pipe may detect these changes and relayed updated data to the server 104, which in turn may generate updated data to be sent to the I-frame 200.

5 In modifying the web page 230 to reflect these changes, the I-frame 200 has updated various updateable objects 210. In this case, the I-frame 200 has received instructions to modify the airflow temperature 320', the main outgoing airflow 330', the sectional outgoing airflow 340', the valve position 350', and the valve display 360'. The partial
10 closing of the valve diminishes the airflow in the sectional portion of the HVAC pipe, and accordingly increases the main outgoing airflow. Once the I-frame 200 executes its timed request to the server 104, the new instruction set is passed to the I-frame 200, which in turn makes the necessary changes to the updateable objects 320', 330', 340', 350', and
15 360'.

In FIG. 4, the web page object update system 100 has altered the various values in response to the received instruction set. Specifically, the valve display 360' has been changed to show that the valve has partially closed, and all relevant temperature and airflow readings are
20 altered to reflect current conditions. In this manner, a user may have accurate information regarding the current airflow in a remote building displayed in an easy to recognize format, without manually requesting new data and without having to refresh the web page 230.

Although the above example includes only temperature, position,
25 and airflow as variables, many other factors may be monitored and updated by the web page object update system 100. For example, humidity, chemical composition, volume, ambient noise level, and

luminosity all may be monitored factors in various systems compatible with the web page object update system.

FIG. 5 shows an exemplary method 500 detailing the logical operation of the web page object update system 100. The method 500 begins with step 501, in which a web page 230 is loaded into a web browser 112 and displayed on a display monitor 116. Once the web page is loaded and displayed, method 500 advances to step 505, where an I-frame 200 is created within the web page 230. Next, step 510 is executed, wherein a timer is initiated. This timer continues to operate until a threshold value is reached. This threshold value is configurable by an administration of the system. Following step 510, the method proceeds to decision step 520, where it is determined whether the threshold value of the timer has been reached. If the threshold value has not been reached, then step 520 is repeated such that the timer continues unabated until it reaches the threshold value.

When the threshold value of the timer has been reached, step 525 is executed. In step 525, the I-frame 200 initiates a "call for content update", which may comprise a communication to the server 104 for updated data. In response to the request for updated data, the client 104 receives from the server 104 the updated data and a corresponding instruction set at step 530. As previously mentioned, the instruction set and updated data may be transmitted to the I-frame 200 from a server-side application 102, and may comprise data instructing the I-frame to update or otherwise modify portions of the web page 230 external to the I-frame.

Alternate embodiments may pass raw (or processed) data from the server 104 to the I-frame 200, and permit the I-frame 200 itself to interpret the data and update objects as necessary.

Once the updated data and instruction set is received, step 535 is executed. In this step, objects within the parent web page are updated, as mandated by the instruction set. Following step 535, the method 500 returns to step 510, where the timer is reset and the web page object
5 update loop is repeated until the system is deactivated.

Conclusion

The web page object update system 100 may include additional functionality. For example, the timer may be activated only in response
10 to a user input, and then deactivated in response to a second user input. Additionally, the web page object update system 100 may be used with any application capable of processing and displaying a web page, such as a word processor with appropriate extensions or an HTML editor.

Many other modifications and additional features will become
15 evident in view of the preceding description of the embodiments of the invention. It should be understood, therefore, that the foregoing relates only to certain embodiments of the invention, and that numerous changes may be made therein without departing from the spirit and scope of the invention as defined by the following claims.

CLAIMS

We claim:

- 5 1. A method for updating objects contained within a web page, comprising:
 - displaying a web page;
 - creating a frame having a height of zero and a width of zero within the web page;
 - 10 displaying outside the frame at least one updateable object within the web page;
 - requesting, by the frame, an instruction set from a server;
 - receiving the instruction set at the invisible frame; and
 - updating the at least one updateable object in accordance with the
 - 15 instruction set.
2. The method of claim 1, wherein the at least one updateable object is a HTML object.
- 20 3. The method of claim 1, further comprising the steps of:
 - in response to displaying the web page, starting a timer; and
 - in response to the timer reaching a threshold value, requesting, by the frame, an instruction set from a server.
- 25 4. The method of claim 3, further comprising, in response to requesting an instruction set from a server, resetting the timer.

5. The method of claim 1, wherein updating the at least one updateable object in accordance with the instruction set comprises updating the at least one updateable object in accordance with the instruction set without refreshing the web page.

5

6. A computer-readable medium containing instructions which, when executed, perform the method of claim 5.

7. The method of claim 1, wherein the frame is an HTML inline frame.

10

8. A method for displaying monitored factors for at least one section of a HVAC system, comprising:

monitoring at least one monitored factor in the at least one section of a HVAC system;

5 transmitting data representing the at least one monitored factor to a server;

within a browser in communication with the server, displaying a web page;

within the web page, creating an inline frame;

10 within the web page, displaying a schematic representing the at least one section of a HVAC system, the schematic having at least one updateable object representing the at least one monitored factor;

altering the at least one updateable object in order to display the current status of the monitored factor.

15

9. The method of claim 9, wherein the inline frame has a height of zero and a width of zero.

10. The method of claim 9, wherein the step of altering the at least one updateable object comprises in order to display the current status of the monitored factor comprises:

20 initiating a request, by the inline frame, for an instruction set from the server;

receiving the instruction set at the inline frame; and

25 updating by means of the inline frame the at least one updateable object in accordance with the instruction set.

11. The method of claim 10, further comprising:
starting a timer; and
in response to the timer reaching a threshold value, requesting, by
the inline frame, the instruction set from the server.
- 5 12. The method of claim 11, further comprising, in response to
requesting the instruction set from the server, resetting the timer.
- 10 13. The method of claim 8, wherein the at least one monitored factor
is chosen from the group: time, temperature, flow, and position.
14. A computer-readable medium containing instructions which,
when executed, perform the method of claim 12.
- 15 15. A signal set for updating at least one updateable object contained
within a web page, comprising:
a first signal transmitted from a server to a client, containing
instructions to the client to create a web page comprising an inline
frame having a height and width of zero, and at least one updateable
object; and
- 20 a second signal transmitted from the server to the client, containing an
updated instruction set transmitted in response to a request for the
updated instruction set from the client, the updated instruction set used
by the inline frame to alter the at least one updateable object while not
otherwise refreshing the web page.
- 25 16. A system for updating at least one content updateable object
within a web page, comprising:

a display screen, operative to display the web page, comprising the at least one updateable object; an invisible frame having a height and width of zero;

5 a communications device, operative to transmit a request for updated data to a server, further operative to receive the updated data, further operative to relay the updated data to the processor;

the processor is further operative to, in response to receiving the updated data from the server, update through the invisible frame the at least one content updateable object; and

10 the display screen is further operative to display the at least one content updateable object without redisplaying the entirety of the web page.

17. The system of claim 16, wherein:

the processor is further operative to execute a timer in response
15 the display screen displaying the web page; and

the processor is further operative to instruct the communications device to transmit the request for updated data to the server in response to the timer reaching a predetermined value.

**A METHOD AND SYSTEM FOR UPDATING OBJECTS
CONTAINED WITHIN A WEB PAGE**

ABSTRACT OF THE DISCLOSURE

5 A method and system for selectively updating selective objects of
web page without requiring that the entire web page be refreshed, and
without requiring user intervention. The invention takes the form of a
web page containing an I-frame displayed in a web browser. An I-frame
is a special type of frame with both a height and width of zero, and
10 dimensioned so as to be effectively invisible through the use of
programming commands. The I-frame may not be seen by a user of the
present invention looking at a displayed web page. The web page also
typically contains one or more updateable objects, and may contain one
or more nonupdateable objects. Updateable objects may take the form
15 of HTML objects, or may be any programmable object that capable of
being refreshed. The I-frame code contains a timer. This timer runs
until a predetermined value is met, at which point the I-frame requests
updated data from a server. Typically, this data takes the form of
instructions to the I-frame to alter the various updateable objects
20 contained within the web page, but external to the I-frame. Thus, the I-
frame may alter portions of the web page which it does not contain, and
with which it otherwise has no direct interaction. By contrast, standard
frames only update objects contained within those frames.

25 Attorney Docket No.:

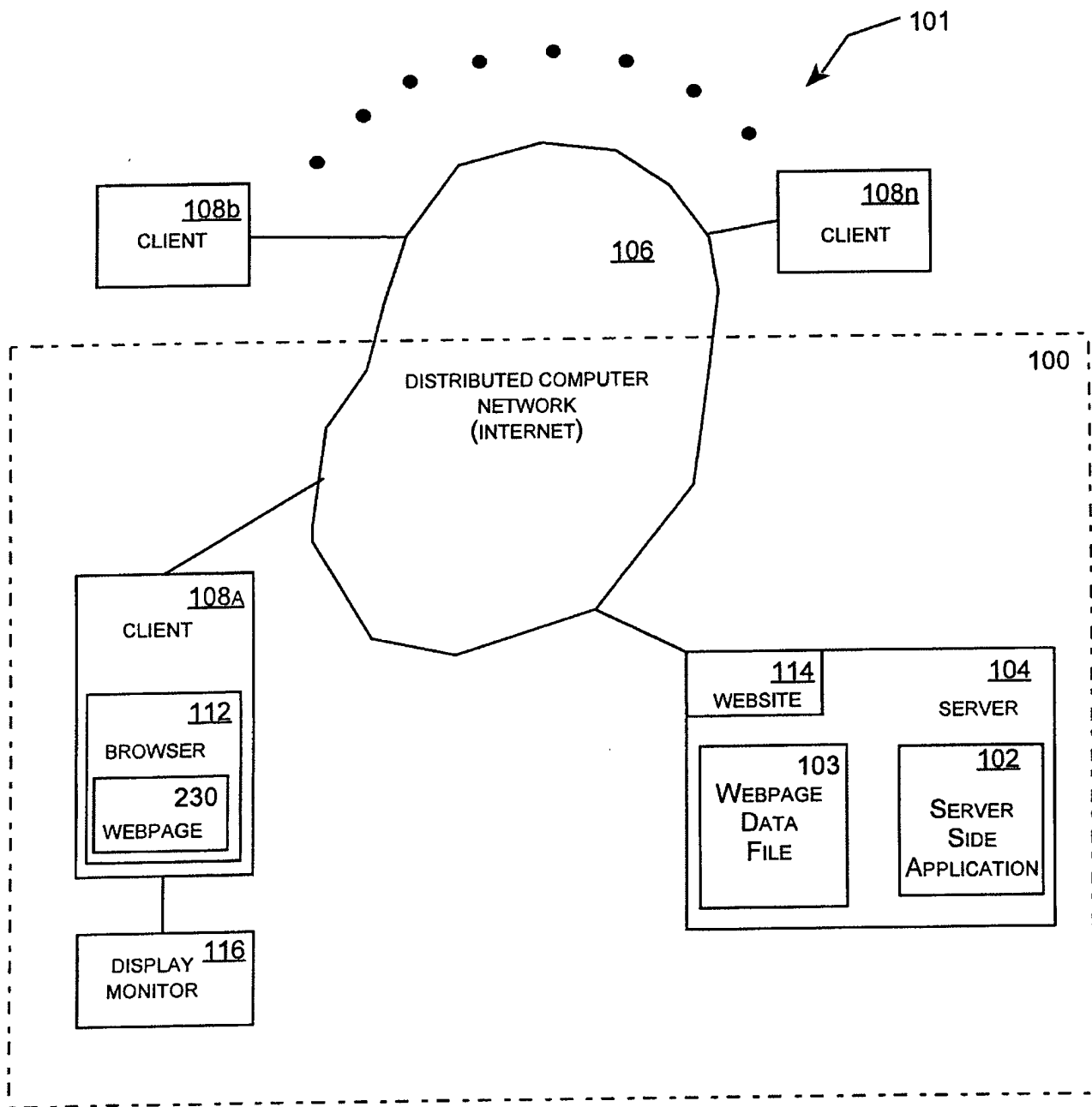


FIG. 1

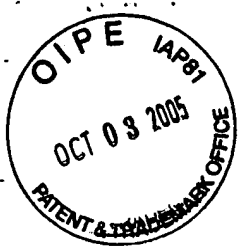
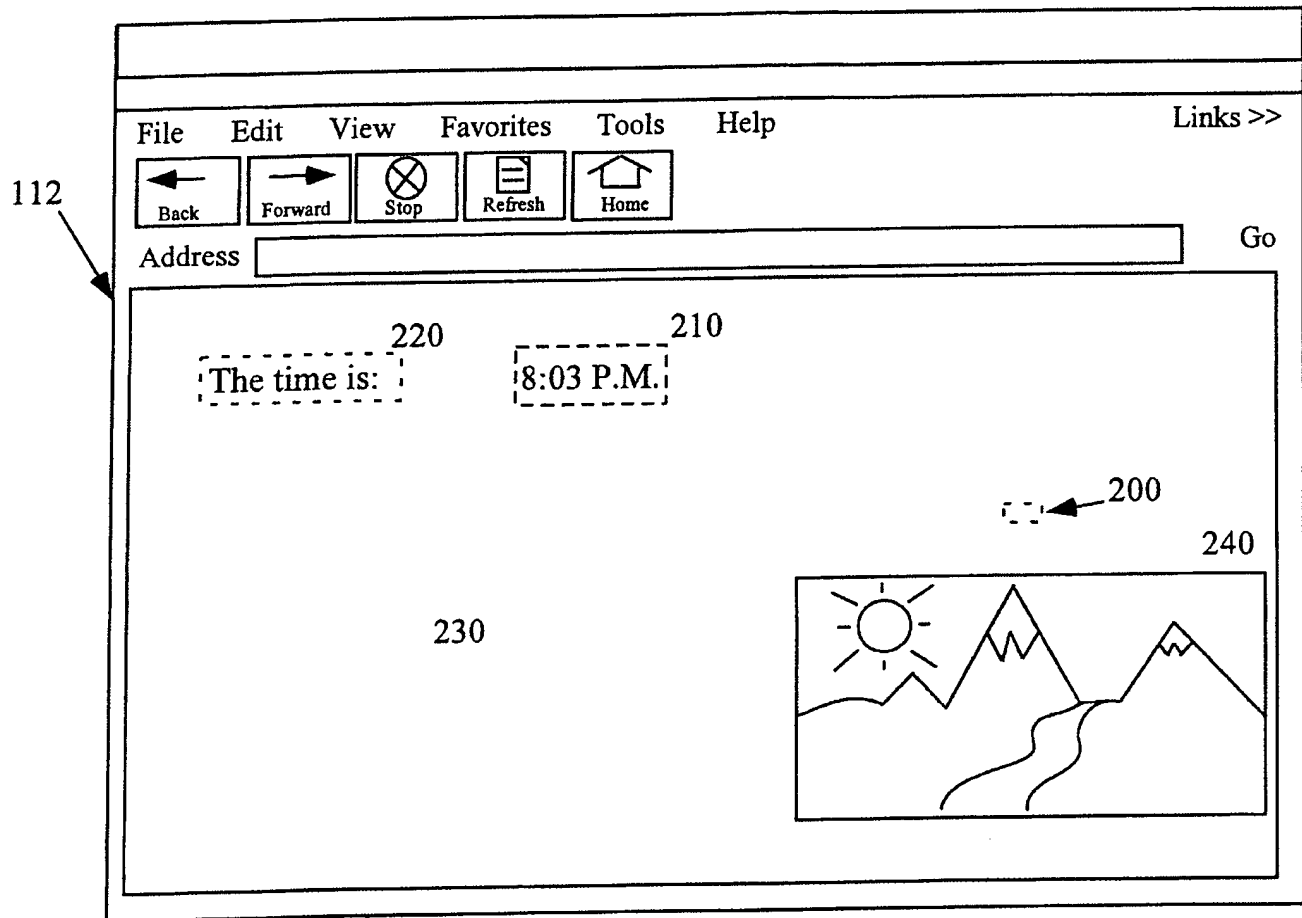


Fig. 2





112

Fig. 3

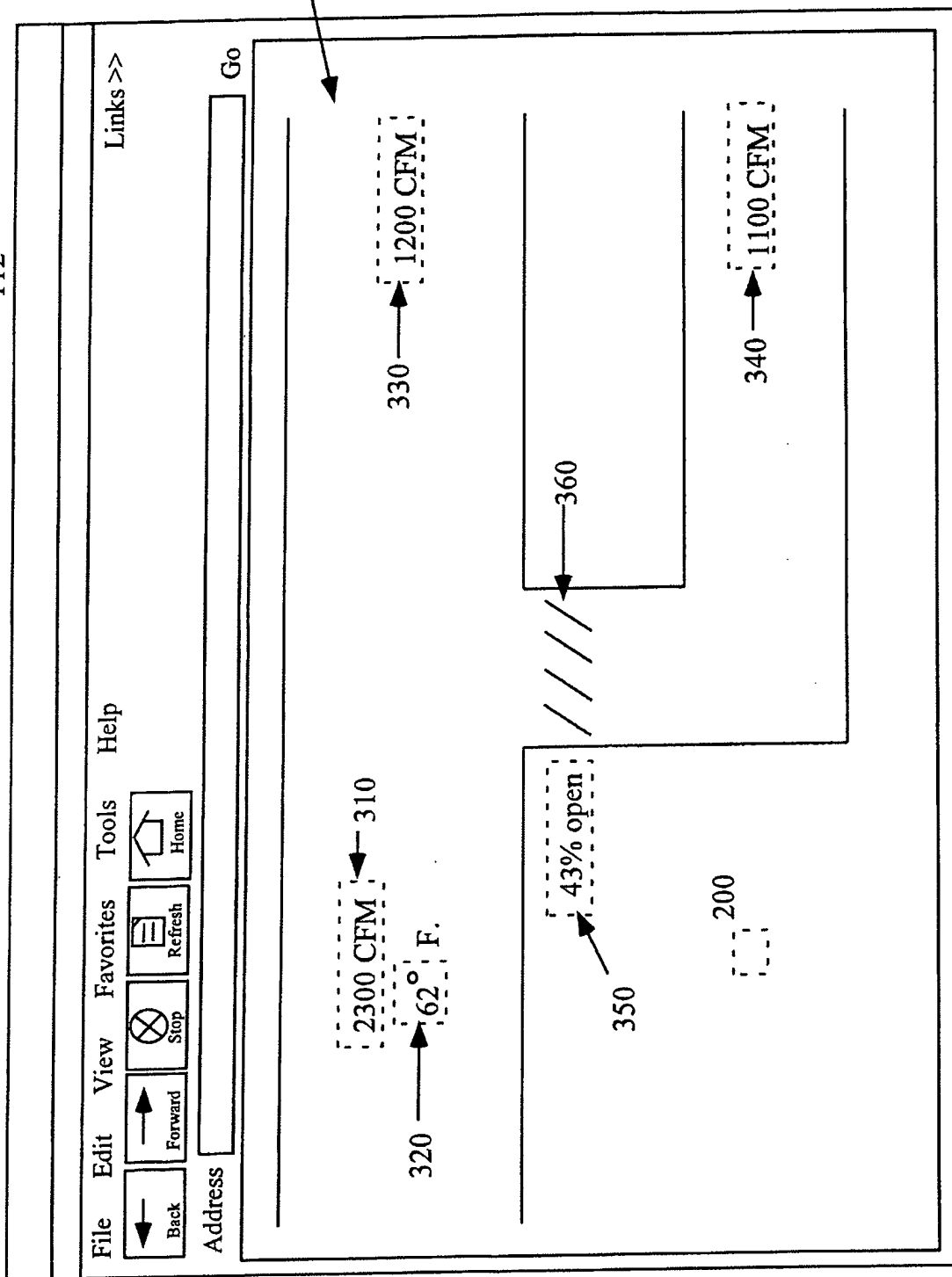




Fig. 4

112

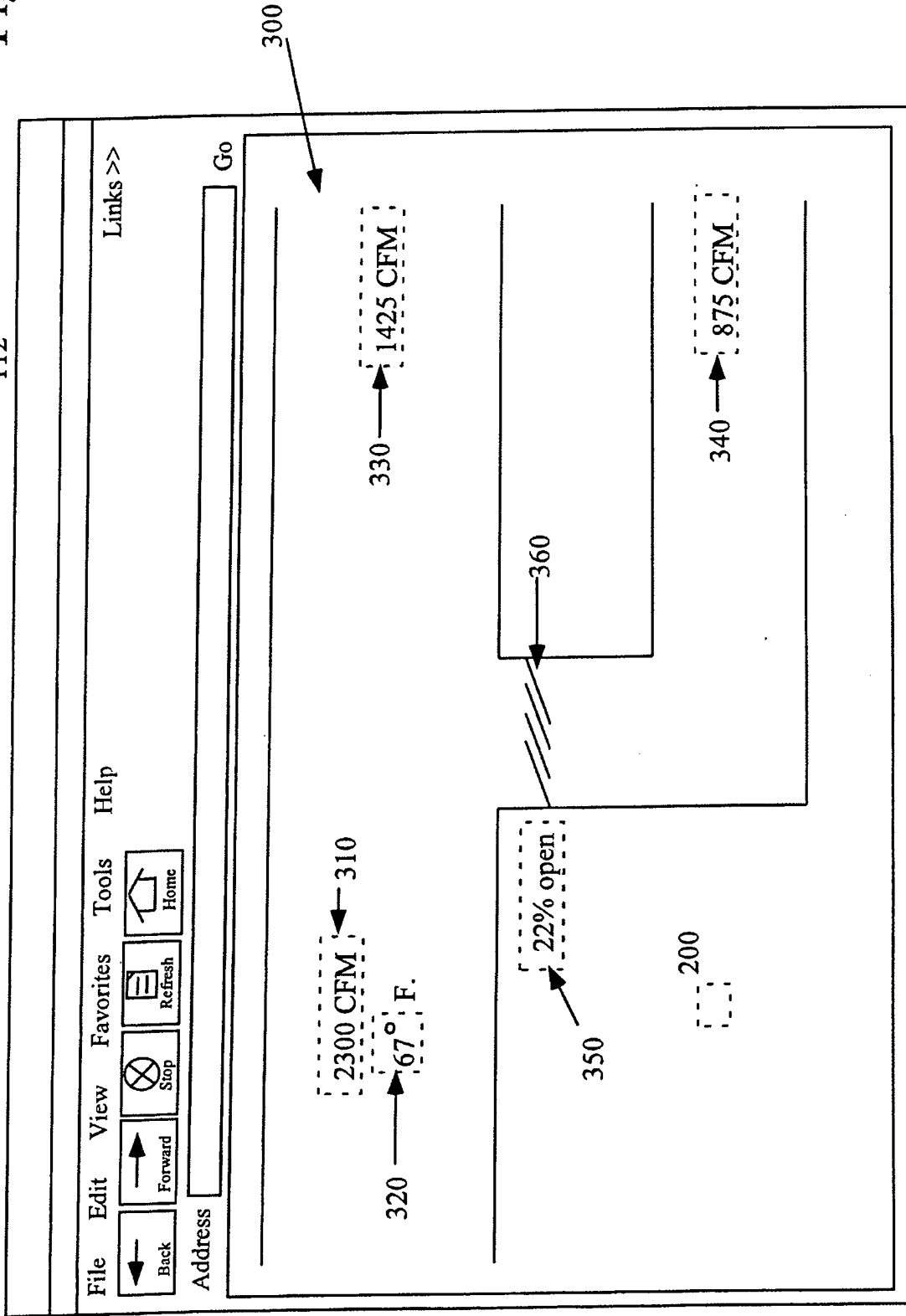


Fig. 5

